# DICOM Conformance Statement

## Product Name:
## SIREMOBIL Compact L
## Memoskop CX VE00E
## Version: 3.3



SIEMENS

1. Introduction ..... 4
**1.1 References ..... 4**
**1.2 Definitions ..... 5**
**1.3 Acronyms, Abbreviations and Symbols ..... 6**
2 Implementation Model ..... 7
**2.1 Application Data Flow Diagram ..... 7**
2.1.1 MEMOSKOP_SCU Store Data Flow Diagram ..... 8
2.1.2 MEMOSKOP_SCU Print Data Flow Diagram ..... 8
2.1.3 MEMOSKOP_SCU Worklist Query Data Flow Diagram ..... 9
2.1.4 MEMOSKOP_SCU Query/Retrieve Data Flow Diagram ..... 9
**2.2 Functional Definition of AE's ..... 10**
2.2.1 MEMOSKOP_SCU AE (Storage) ..... 10
2.2.2 MEMOSKOP_SCU AE (Printing) ..... 10
2.2.3 MEMOSKOP_SCU AE (Worklist) ..... 10
2.2.4 MEMOSKOP_SCU AE (Query/Retrieve) ..... 10
**2.3 Sequencing of Real-World Activities ..... 10**
3 AE Specifications ..... 11
**3.1 MEMOSKOP_SCU Specification ..... 11**
3.1.1 MEMOSKOP_SCU Association Establishment Policies ..... 11
3.1.1.1 MEMOSKOP_SCU General ..... 11
3.1.1.2 MEMOSKOP_SCU Number of Associations ..... 12
3.1.1.3 MEMOSKOP_SCU Asynchronous Nature ..... 12
3.1.1.4 MEMOSKOP_SCU Implementation Identifying Information ..... 12
3.1.2 MEMOSKOP_SCU Association Initiation by Real-World Activity ..... 12
3.1.2.1 MEMOSKOP_SCU Real-World Activity – Storage ..... 13
3.1.2.2 MEMOSKOP_SCU Real-World Activity – Print ..... 14
3.1.2.3 MEMOSKOP_SCU Real-World Activity – Worklist Query ..... 16
3.1.2.4 MEMOSKOP_SCU Real-World Activity – Patient Studies Query/Retrieve ..... 17
4 Communication Profiles ..... 19
**4.1 Supported Communication Stacks ..... 19**
**4.2 OSI Stack ..... 19**
**4.3 TCP/IP Stack ..... 19**
4.3.1 API ..... 19
4.3.2 Physical Media Support ..... 19
**4.4 Point-to-Point Stack ..... 19**
5 Extensions/ Specializations/ Privatizations ..... 19
6 Configuration ..... 20
**6.1 AE Title/Presentation Address Mapping ..... 20**
**6.2 Configurable AE Title/Presentation Address Mapping ..... 20**
7 Configurable Parameters ..... 21

8 Support of Extended Character Sets..... 21

9 APPENDIX: Data-Dictionary ..... 21

**9.1 Secondary Capture IOD..... 21**

9.1.1 SC Image IOD Module Table..... 21
9.1.1.1 Patient Module Attributes..... 22
9.1.1.2 General Study Module Attributes..... 22
9.1.1.3 General Series Module Attributes..... 23
9.1.1.4 General Equipment Module Attributes..... 23
9.1.1.5 X-Ray Acquisition Module Attributes..... 24
9.1.1.6 General Image Module Attributes..... 24
9.1.1.7 Overlay Plane Module Attributes..... 26
9.1.1.8 Image Pixel Module Attributes..... 26
9.1.1.9 Modality LUT Module Attributes..... 29
9.1.1.10 VOI LUT Module Attributes..... 30
9.1.1.11 SOP Common Module Attributes..... 30

**9.2 Basic Film Session Presentation Module..... 31**

9.2.1.1 Basic Film Box Presentation Module..... 31
9.2.1.2 Image Box Pixel Presentation Module..... 34
9.2.1.3 Printer Module..... 35

**9.3 Basic Worklist Mgt IOD´s..... 36**

9.3.1 Search Keys Attributes of Worklist C-FIND..... 36
9.3.1.1 SOP Common Module..... 36
9.3.1.2 Scheduled Procedure Step Module..... 36
9.3.1.3 Procedure Module..... 37
9.3.1.4 Imaging Service Request Module..... 37
9.3.1.5 Patient Identification Module..... 37
9.3.1.6 Patient Demographic Module..... 37

**9.4 Query/Retrieve Mgt IOD´s..... 38**

9.4.1 Search Key Attributes of Query/Retrieve C-FIND..... 38
9.4.1.1 SOP Common Module..... 38
9.4.1.2 Study Module..... 38
9.4.1.3 Series Module..... 38
9.4.1.4 Patient Identification Module..... 38
9.4.1.5 Patient Demographic Module..... 39

# 1. Introduction

This DICOM Conformance Statement of Image Storage System MEMOSKOP is written in accordance with Part PS 3.2-2003 of the *Diagnostic Imaging & Communications in Medicine* **(DICOM)** [1] document.

This conformance statement describes the DICOM Interface of the MEMOSKOP CX Software VE00E or higher. This document is intended to provide the reader with the knowledge of how to integrate this product within a DICOM compliant hospital **network**. It is not applicable to the local removable media such as the CD/DVD offline transfer of images which are described in a separate document.

The MEMOSKOP DICOM Interface acts as a Service Class User (SCU) for Secondary Capture Image Storage and Basic Print . If the user is unfamiliar with DICOM, it is recommended that they read the DICOM Specification (referenced below) prior to reading this conformance statement. Also note that this document is formatted according to the DICOM Specification, Part 2: Conformance.

## *1.1 References*

[1] Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3.1-16 @ NEMA
The DICOM Standard is under continuous maintenance, the current official version is available at
http://dicom.nema.org

## 1.2 Definitions

- **Association Establishment** - An Association Establishment is the first phase of communication between two DICOM Application Entities. The AEs use the Association Establishment to negotiate how data will be encoded and the type of data to be exchanged.
- **Called Application Entity Title** - The Called AE Title defines the intended receiver of an Association.
- **Calling Application Entity Title** - The Calling AE Title defines the requester of an Association.
- **DICOM Message Service Element (DIMSE)** - A DIMSE defines the services and protocols utilized by an Application Entity to exchange messages.
- **Information Object Definition (IOD)** - An IOD is a data model which is an abstraction of real-world information. This data model defines the nature and attributes relevant to the class of real-world objects represented.
- **Service Class Provider (SCP)** - A Service Class Provider plays the "server" role to perform operations and invoke notifications during an Association. An example of a Storage Service Class Provider would be an image storage device. In this case, the image storage device is storing the image that was sent by a Service Class User.
- **Service Class User (SCU)** - A Service Class User plays the "client" role to invoke operations and perform notifications during an Association. An example of a Storage Service Class User would be an image acquisition device. In this case, the image acquisition device will create and send a DICOM image by requesting that a Service Class Provider store that image.
- **Service/Object Pair (SOP) Class** - A SOP Class is defined by the union of an Information Object Definition and a set of DIMSE Services. A DICOM Application Entity may support one or more SOP Classes. Each SOP Class is uniquely identified by a SOP Class UID.
- **SOP Instance** - A specific occurrence of an Information Object.
- **Transfer Syntax** - The Transfer Syntax is a set of encoding rules that allow DICOM Application Entities to negotiate the encoding techniques (e.g. data element structure, byte ordering, compression) they are able to support. The Transfer Syntax is negotiated during Association Negotiation.
- **Unique Identifier (UID)** - A Unique Identifier is a globally unique, ISO compliant, ASCII-numeric string. It guarantees uniqueness across multiple countries, sites, vendors and equipment.

## *1.3 Acronyms, Abbreviations and Symbols*

- ACR American College of Radiology
- ASCII American Standard Code for Information Interchange
- AE Application Entity
- ANSI American National Standards Institute
- AP Application Profile.
- DICOM Digital Imaging and Communications in Medicine
- DIMSE DICOM Message Service Element
- DIMSE-C DICOM Message Service Element - Composite
- DIMSE-N DICOM Message Service Element – Normalized
- IE Information Entity
- IOD Information Object Definition
- ISO International Standards Organization
- MOD Magnetic-Optical Disk/Drive 90mm (3.5”).
- NEMA National Electrical Manufacturers Association
- OSI Open Systems Interconnection
- PDU Protocol Data Unit
- RIS Radiology Information System
- RWA Real-World Activity.
- SCP Service Class Provider
- SCU Service Class User
- SOP Service-Object Pair
- TCP/IP Transmission Control Protocol/Internet Protocol
- UID Unique Identifier
- MEMOSKOP Name of the Image Storage System MEMOSKOP for X-Ray Units

# 2 Implementation Model

MEMOSKOP is a **client** application for a **DICOM Service Class User** (**SEND_SCU** for Storage**, PRINT_SCU** for Basic Print, **WORKLIST_SCU** for Basic modality worklist, and **QUERY_RETRIEVE_SCU** for Query/Retrieve). It facilitates image transfer and printing from a **MEMOSKOP** to DICOM v3.0 conformance **Servers and Printers** over a network.

## *2.1 Application Data Flow Diagram*

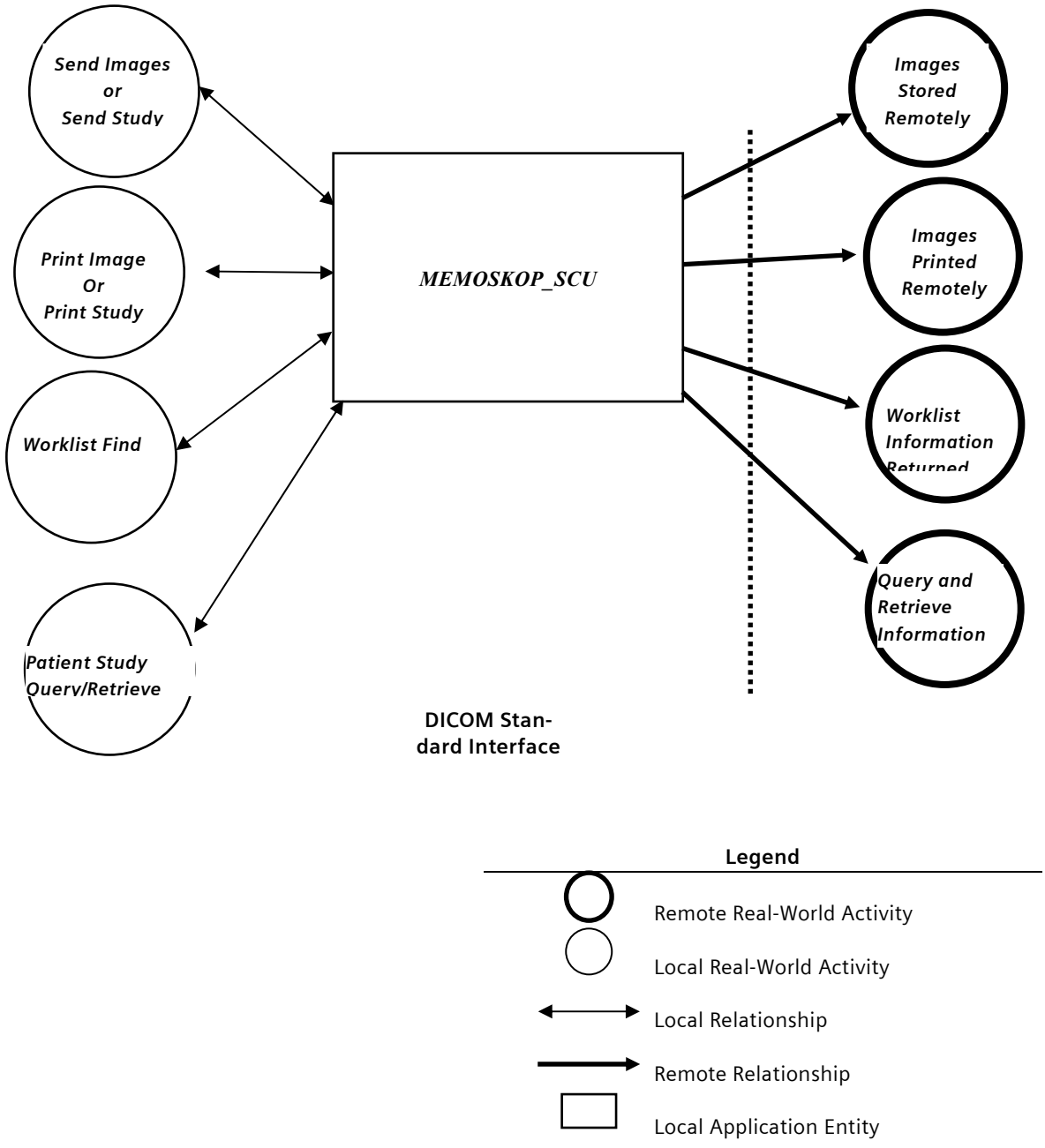


**Figure 1.1-1** Implementation Model of MEMOSKOP

The ***MEMOSKOP_SCU*** (including ***STORE_SCU, PRINT_SCU, Worklist_SCU,*** and ***QUERY_RETRIEVE_SCU***) provides storage, query/retrieve and printer functionality to the MEMOSKOP System. On command from the **MEMOSKOP** requests an association with the destination that is specified by the **MEMOSKOP** . The

destination Application Entity (AE) will be a predefined **DICOM server** whose node-name and node-address is available to the **MEMOSKOP** system. Upon receiving an association acceptance from the server application, this client application will either read images prepared by the **MEMOSKOP** and send them over the association, query/retrieve studies, print or perform a **worklist query**. If errors are encountered during the service requests, the ***MEMOSKOP_SCU*** will close the association prematurely, and the encountered error will be reported to the **MEMOSKOP** . If no errors are encountered, the client application closes the association after the image transfer(s) are completed or worklist responses are received. A successful completion is reported to the **MEMOSKOP** at that point.

### 2.1.1 MEMOSKOP_SCU Store Data Flow Diagram

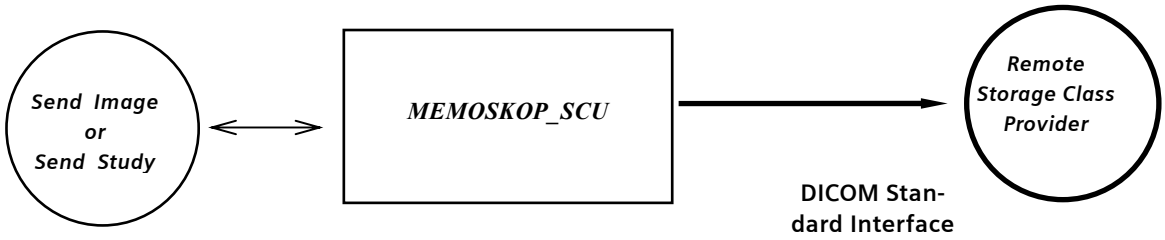


**Figure 1.1.1-1** ***MEMOSKOP_SCU*** Store Implementation Model

### 2.1.2 MEMOSKOP_SCU Print Data Flow Diagram

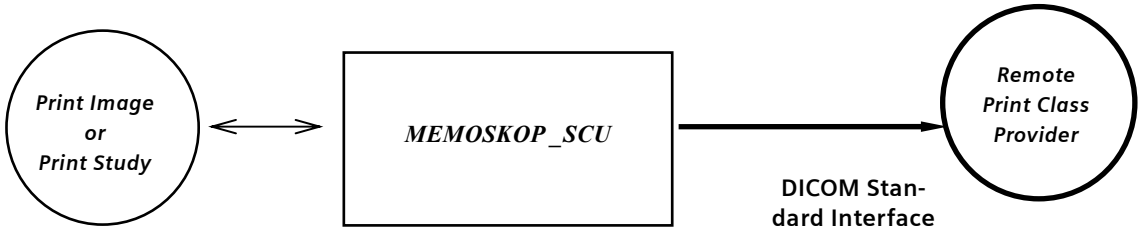


**Figure 1.1.2-1** ***MEMOSKOP_SCU*** Print Implementation Model

## 2.1.3 MEMOSKOP_SCU Worklist Query Data Flow Diagram

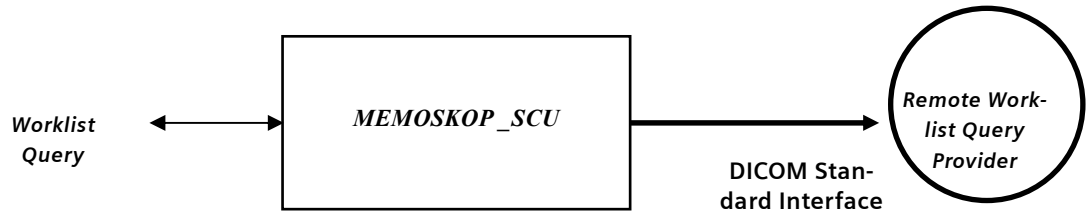


**Figure 1.1.3-1** ***MEMOSKOP _SCU*** Worklist Query Implementation Model

## 2.1.4 MEMOSKOP_SCU Query/Retrieve Data Flow Diagram

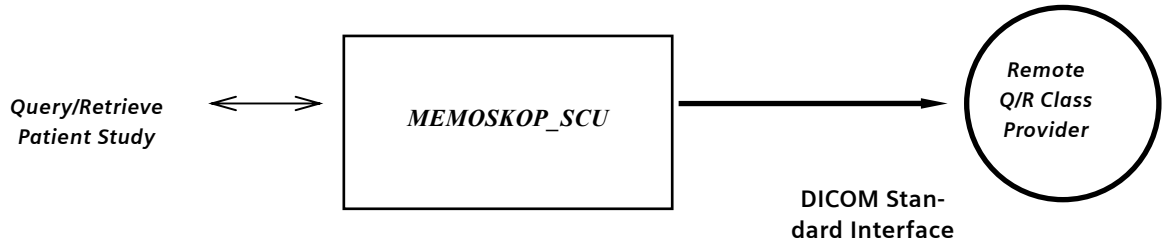


**Figure 1.1.1-1** ***MEMOSKOP_SCU*** Query/Retrieve Implementation Model

## *2.2 Functional Definition of AE's*

### 2.2.1 MEMOSKOP_SCU AE (Storage)

When a command is received from the **MEMOSKOP** to store images the ***MEMOSKOP_SCU*** uses a predetermined **Presentation Context** for the destination system, to request an association with the specified destination's **Application Entity**. When the image transfers are completed the ***MEMOSKOP_SCU*** closes the association.

### 2.2.2 MEMOSKOP_SCU AE (Printing)

For printing the Basic Grayscale Print Mgt Meta SOP Class and Printer SOP Class are used. The MEMOSKOP_SCU is configured to access a single Application Entity for printing. Upon receiving a print request from the MEMOSKOP MEMOSKOP_SCU initiates an association with the Application Entity designated for printing. When the image printing is complete the MEMOSKOP_SCU closes the association.

### 2.2.3 MEMOSKOP_SCU AE (Worklist)

For worklist query the Basic Worklist Management Service SOP Class is used. The MEMOSKOP_SCU is configured to access a single Application Entity for worklist query. Upon receiving a worklist query request from the MEMOSKOP the MEMOSKOP_SCU initiates an association with the Application Entity designated for worklist query. When the query is completed at the MEMOSKOP a sorted list of query responses is displayed.

### 2.2.4 MEMOSKOP_SCU AE (Query/Retrieve)

When a command is received from the **MEMOSKOP** to query/retrieve patient studies the ***MEMOSKOP_SCU*** uses a predetermined **Presentation Context** for the destination system, to request an association with the specified remote **Application Entity**. When the image transfers are completed the ***MEMOSKOP_SCU*** closes the association.

## *2.3 Sequencing of Real-World Activities*

Not Applicable.

# 3 AE Specifications

AE Specifications for ***MEMOSKOP_SCU*** as Client mode is given in the section **2.1**. **Data-dictionary** is given in the Appendix.

## *3.1 MEMOSKOP_SCU Specification*

***MEMOSKOP_SCU AE*** provides Standard Conformance to the following DICOM SOP Classes as an SCU:

| SOP Class Name | SOP Class UID |
|---|---|
| **Storage** | |
| Secondary Capture Image Storage SOP Class | 1.2.840.10008.5.1.4.1.1.7 |
| X-Ray Angiographic Image Storage SOP Class | 1.2.840.10008.5.1.4.1.1.12.1 |
| X-Ray Radiofluoroscopic Image Storage SOP Class | 1.2.840.10008.5.1.4.1.1.12.2 |
| **Print** | |
| Print Job SOP Class | 1.2.840.10008.5.1.1.14 |
| Basic Grayscale Print Management Meta SOP class | 1.2.840.10008.5.1.1.9 |
| **Worklist** | |
| Modality Worklist Information Model - FIND | 1.2.840.10008.5.1.4.31 |
| **Query/Retrieve** | |
| Patient Root Query/Retrieve Information Model - FIND | 1.2.840.10008.5.1.4.1.2.1.1 |
| Study Root Query/Retrieve Information Model - FIND | 1.2.840.10008.5.1.4.1.2.2.1 |
| Patient/Study Only Query/Retrieve Information Model - FIND | 1.2.840.10008.5.1.4.1.2.3.1 |
| Patient Root Query/Retrieve Information Model - MOVE | 1.2.840.10008.5.1.4.1.2.1.2 |
| Study Root Query/Retrieve Information Model - MOVE | 1.2.840.10008.5.1.4.1.2.2.2 |
| Patient/Study Only Query/Retrieve Information Model - MOVE | 1.2.840.10008.5.1.4.1.2.3.2 |

**Table 2.1-1:** Standard SOP Classes supported

### 3.1.1 MEMOSKOP_SCU Association Establishment Policies

#### 3.1.1.1 MEMOSKOP_SCU General

***MEMOSKOP_SCU*** will attempt to establish an association whenever the MEMOSKOP requests the services of a remote **DICOM server (SCP)**. The application will use a **PDU** size of **16,384 (16K)** bytes. This is however, configurable in the ASSOC_PARMS section of the MERGECOM.PRO file to be 4K, 8K, 16K or greater than 16K bytes using the parameter PDU_MAXIMUM_LENGTH AE Titles are configured in the Application.

### 3.1.1.2 MEMOSKOP_SCU Number of Associations

***MEMOSKOP_SCU*** will attempt only one association establishment at a time.

### 3.1.1.3 MEMOSKOP_SCU Asynchronous Nature

***MEMOSKOP_SCU*** allows a single outstanding operation on any association. Therefore, ***MEMOSKOP_SCU*** does not support asynchronous operations window negotiation, other than the default as specified by the DICOM specification.

### 3.1.1.4 MEMOSKOP_SCU Implementation Identifying Information

***MEMOSKOP_SCU*** will specify the following Implementation Identifying Information:

- Implementation Class UID 1.3.12.2.1107.5.12.1
- Implementation Version Name MergeCOM3_351

## 3.1.2 MEMOSKOP_SCU Association Initiation by Real-World Activity

***MEMOSKOP_SCU*** initiates an association when the operator chooses the following activity on the MEMOSKOP server:

- Storage - Create and store an SC image to a remote DICOM device
- Print - Print a Basic Grayscale image to a remote DICOM printer
- Worklist - Request Patient Information from a remote DICOM device
- Query/Retrieve - Find and get patient studies from a remote DICOM device

## 3.1.2.1 MEMOSKOP_SCU Real-World Activity – Storage

### *3.1.2.1.1 MEMOSKOP_SCU Associated Real-World Activity - Storage*

Image storage services are requested by the operator of the **MEMOSKOP** for a single image or a collection of images comprising a study. The user also selects a destination alias displayed on the user interface screen. The transfer is invoked at the MEMOSKOP host, when the user selects a destination and an image or study to be dispatched.

The MEMOSKOP assembles the necessary information and commands for the ***MEMOSKOP_SCU*** to initiate an association with a remote SCP. When an association is successfully established, ***MEMOSKOP_SCU*** sends the image(s) assembled by the MEMOSKOP.

The transfer is aborted and the association is closed if errors are encountered. In such a case, the MEMOSKOP will display an error message on the user interface. Otherwise, the association is closed after the image(s) are transferred.

### *3.1.2.1.2 MEMOSKOP_SCU Proposed Presentation Contexts – Storage*

***MEMOSKOP_SCU*** proposes the following Presentation Contexts shown in Table 2.1.2.1.2-1 below:

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | | **Extended** |
| **Name** | **UID** | **Name List** | **UID List** | **Role** | **Negotiation** |
| Secondary Capture Image | 1.2.840.10008.5.1.4.1.1.7 | Implicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Big Endian Transfer Syntax | 1.2.840.10008.1.2.2 | | |
| | | Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2.1 | | |
| X-Ray Angiographic Image | 1.2.840.1008.5.1.4.1.1.12.1 | Implicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Big Endian Transfer Syntax | 1.2.840.10008.1.2.2 | | |
| | | Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2.1 | | |

| | | | | | |
|---|---|---|---|---|---|
| X-Ray Radiofluoros-copic Image | 1.2.840.10008.5.1.4.1.1.12.2 | Implicit VR Little Endian Transfer Syntax<br><br>Explicit VR Big Endian Transfer Syntax<br><br>Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2<br><br>1.2.840.10008.1.2.2<br><br>1.2.840.10008.1.2.1 | SCU | None |

**Table 2.1.2.1.2-1 :** Presentation Contexts for Image Storage of MEMOSKOP_SCU

## 3.1.2.2 MEMOSKOP_SCU Real-World Activity – Print

### *3.1.2.2.1 MEMOSKOP_SCU Associated Real-World Activity - Print*

Image print services are requested by the operator of the **MEMOSKOP** for a single image or a collection of images comprising a study. A single printer destination is preconfigured. The user can select the film size, film format, and number of copies on the MEMOSKOP. The transfer is invoked at the MEMOSKOP when the user selects an image or study to be printed.

The MEMOSKOP assembles the necessary information and commands for the ***MEMOSKOP_SCU*** to initiate an association with a remote printer SCP. When an association is successfully established, ***MEMOSKOP_SCU*** sends the image(s) assembled by the MEMOSKOP.

The transfer is aborted and the association is closed if errors are encountered. In such a case, the MEMOSKOP indicates the type of error. The MEMOSKOP will display an error message on the user interface. Otherwise, the association is closed after the image(s) are transferred.

### *3.1.2.2.2 MEMOSKOP_SCU Proposed Presentation Contexts - Print*

***MEMOSKOP_SCU*** proposes the following Presentation Contexts shown in Table 2.1.2.2.2-1 below:

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | | **Extended** |
| **Name** | **UID** | **Name List** | **UID List** | **Role** | **Negotiation** |
| Basic Grayscale Print Management Meta SOP Class | 1.2.840.10008.5.1.1.9 | Implicit VR Little Endian Transfer Syntax<br>Explicit VR Big Endian Transfer Syntax<br>Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |
| Print Job SOP Class | 1.2.840.10008.5.1.1.14 | Implicit VR Little Endian Transfer Syntax<br>Explicit VR Big Endian Transfer Syntax<br>Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |

**Table 2.1.2.2.2-1:** Presentation Contexts for Print of MEMOSKOP_SCU

## 3.1.2.3 MEMOSKOP_SCU Real-World Activity – Worklist Query

### *3.1.2.3.1 MEMOSKOP_SCU Associated Real-World Activity – Worklist Query*

A worklist query is requested by the operator of the **Memoskop** during patient information entry. A single worklist query provider is preconfigured in the MEMOSKOP configuration. The user can restrict the responses by entering partial or complete values for the patient information. The user can also use wild cards to expand the query. The Scheduled Station Name can be also configured in the user setup menu on the MEMOSKOP . The query is invoked at the MEMOSKOP when the user selects the All Pat key during patient information entry.

The MEMOSKOP assembles the necessary information and commands for the ***MEMOSKOP_SCU*** to initiate an association with a remote worklist SCP. When an association is successfully established, the ***MEMOSKOP_SCU*** sends the keys to be matched.

The transfer is aborted and the association is closed if errors are encountered. In such a case, the MEMOSKOP will display an error message on the user interface. Otherwise, the responses are received until no more are available or the maximum allowed are received and the association is closed. The responses are sorted by Patient Name and birthdate and the MEMOSKOP displays the patient information received so the user can select the correct patient information to use in the patient entry screen.

### *3.1.2.3.2 MEMOSKOP_SCU Proposed Presentation Contexts – Worklist Query*

***MEMOSKOP_SCU*** proposes the following Presentation Contexts shown in Table 2.1.2.3.2-1 below:

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Extended Negotiation** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| Modality Worklist Information Model - FIND | 1.2.840.10008.5.1.4.31 | Implicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Big Endian Transfer Syntax | 1.2.840.10008.1.2.2 | | |
| | | Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2.1 | | |

**Table 2.1.2.3.2-1:** Presentation Contexts for Worklist of MEMOSKOP_SCU

## 3.1.2.4 MEMOSKOP_SCU Real-World Activity – Patient Studies Query/Retrieve

### *3.1.2.4.1 MEMOSKOP_SCU Associated Real-World Activity – Query/Retrieve*

A patient/study query and retrieve is requested by the operator of the **Memoskop** during patient information entry. A single query/retrieve provider is preconfigured in the MEMOSKOP configuration. The user can restrict the responses by entering partial or complete values for the patient information. The user can also use wild cards to expand the query. The modality can be selected by the user from the menu on the MEMOSKOP . The query is invoked at the MEMOSKOP when the user selects the All Pat key during patient information entry.

The MEMOSKOP assembles the necessary information and commands for the ***MEMOSKOP_SCU*** to initiate an association with a remote query/retrieve SCP. When an association is successfully established, the ***MEMOSKOP_SCU*** sends the keys to be matched.

The transfer is aborted and the association is closed if errors are encountered. In such a case, the MEMOSKOP will display an error message on the user interface. Otherwise, the responses are received until no more are available or the maximum allowed are received and the association is closed. The responses are sorted by Patient Name and birthdate and the MEMOSKOP displays the patient information received so the user can select the patient study to get from the remote.

### *3.1.2.4.2 MEMOSKOP_SCU Proposed Presentation Contexts – Query/Retrieve*

***MEMOSKOP_SCU*** proposes the following Presentation Contexts shown in Table 2.1.2.4.2-1 below:

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Extended Negotiation |
| Name | UID | Name List | UID List | | |
| Patient Root Information Model - FIND | 1.2.840.10008.5.1.4.1.2.1.1 | Implicit VR Little Endian Transfer Syntax<br>Explicit VR Big Endian Transfer Syntax<br>Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |
| Study Root Information Model - FIND | 1.2.840.10008.5.1.4.1.2.2.1 | Implicit VR Little Endian Transfer Syntax<br>Explicit VR Big Endian Transfer Syntax<br>Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |
| Patient Study Only Information Model - FIND | 1.2.840.10008.5.1.4.1.2.3.1 | Implicit VR Little Endian Transfer Syntax<br>Explicit VR Big Endian Transfer Syntax<br>Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |
| Patient Root Information Model – MOVE | 1.2.840.10008.5.1.4.1.2.1.2 | Implicit VR Little Endian Transfer Syntax<br>Explicit VR Big Endian Transfer Syntax<br>Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |
| Study Root Information Model - MOVE | 1.2.840.10008.5.1.4.1.2.2.2 | Implicit VR Little Endian Transfer Syntax<br>Explicit VR Big Endian Transfer Syntax<br>Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |
| Patient Study Only Information Model - MOVE | 1.2.840.10008.5.1.4.1.2.3.2 | Implicit VR Little Endian Transfer Syntax<br>Explicit VR Big Endian Transfer Syntax<br>Explicit VR Little Endian Transfer Syntax | 1.2.840.10008.1.2<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2.1 | SCU | None |

**Table 2.1.2.4.2-1: Presentation Contexts for Query/Retrieve of MEMOSKOP_SCU**

# 4 Communication Profiles

## *4.1 Supported Communication Stacks*

This product provides DICOM TCP/IP Network Communication Support as defined in PS 3.8 of the DICOM Standard.

## *4.2 OSI Stack*

Not applicable to this product.

## *4.3 TCP/IP Stack*

Inherited from Windows XP upon which it executes.

### 4.3.1 API

Not applicable to this product.

### 4.3.2 Physical Media Support

The physical media supported is Ethernet 10/100Base-T.

## *4.4 Point-to-Point Stack*

Not applicable to this product.

# 5 Extensions/ Specializations/ Privatizations

Not applicable to this product.

# 6 Configuration

The ***MEMOSKOP_SCU*** obtains configuration information partially from the **MERGE.INI, MERGECOM.APP,** and **MERGECOM.PRO**. These files are resident in the same directory as the application executable, while other configuration information may be stored in the Windows XP system files and are accessed through the user and technical setup menus of the application. These files specify **DICOM** association parameters for the application.

## *6.1 AE Title/Presentation Address Mapping*

Presentation address mapping is partially configured in the **Windows XP system** files and the **MERGE.INI, MERGECOM.APP,** and **MERGECOM.PRO** files.

Following AE Titles are configured in the XP system file:

- The environment variable MERGE_INI needs to be configured in System Variable section of the Environment tab of the System application in the Control Panel.
- The MERGE_INI environment variable points to the MERGE.INI file normally located in the same sub directory as the MEMOSKOP executable. The Merge.ini file gives the location of the Mergecom.pro and the MERGECOM.APP configuration files.
- The IP addresses and host names need to be configured in the Windows XP HOSTS file or DNS Server.

## *6.2 Configurable AE Title/Presentation Address Mapping*

Four parameters are required to map an **AE title** of a **DICOM** server to a Presentation address in **TCP/IP**. These are the host-name of the server, the TCP/IP address, the port-number and the AE title. The **TCP/IP** port number at which the server will be addressed can be configured under IP_ADDRESS in the Technical Setup Menu. Finally, the AE title of the **DICOM server** will be the one configured as the AE_TITLE in the Technical Setup Menu.

The AE title of the client application can be configured under System DICOM Settings in the Technical Setup Menu**.**

# 7 Configurable Parameters

The Application Entity Titles, host names, IP-Addresses and port numbers.

The PDU size is set to 16384.

Network Timeout : 120 seconds.

# 8 Support of Extended Character Sets

***MEMOSKOP_SCU*** supports ISO-IR 100 (ISO 8859-1 Latin 1) character set.

# 9 APPENDIX: Data-Dictionary

## *9.1 Secondary Capture IOD*

### 9.1.1 SC Image IOD Module Table

#### SC Image IOD Modules

| IE | Module | Usage | Remark |
|---|---|---|---|
| Patient | Patient | M | |
| Study | General Study | M | |
| Series | General Series | M | |
| Equipment | General Equipment | U | |
| | SC Equipment | M | |
| Image | General Image | M | |
| | Image Pixel | M | |
| | Overlay Plane | U | |
| | Modality LUT | U | |
| | VOI LUT | U | |
| | SOP Common | M | |

### 9.1.1.1 Patient Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Patient's Name | (0010,0010) | 2 | Patient's full legal name. | as entered on new MEMOSKOP patient data mask<br>includes Lastname and Firstname, separated by ^ (Caret) according to PN-definition in [1] |
| Patient ID | (0010,0020) | 2 | Primary hospital identification number or code for the patient. | as entered on new MEMOSKOP patient data mask |
| Patient's Birth Date | (0010,0030) | 2 | Birth date of the patient. | as entered on new MEMOSKOP patient data mask |
| Patient's Sex | (0010,0040) | 2 | Sex of the named patient.<br>Enumerated Values are:<br>M = male<br>F = female<br>O = other | as entered on new MEMOSKOP patient data mask |

### 9.1.1.2 General Study Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Study Instance UID | (0020,000D) | 1 | Unique identifier for the Study. | According to Siemens Definition |
| Study Date | (0008,0020) | 2 | Date the Study started. | Date the Study was created on Imaging System |
| Study Time | (0008,0030) | 2 | Time the Study started. | Time the Study was created on Imaging System |
| Referring Physician's Name | (0008,0090) | 2 | Patient’s referring physician | as received from Worklist query according to PN-definition |
| Study ID | (0020,0010) | 2 | User or equipment generated Study identifier. | “N” where N is a counting value<br>(1 .. n) |
| Accession Number | (0008,0050) | 2 | A RIS generated number that identifies the order for the Study. | as entered on new MEMOSKOP patient data mask |
| Study Description | (0008,1030) | 3 | Institution-generated description or classification of the Study (component) performed. | “Study Name” |

### 9.1.1.3 General Series Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Modality | (0008,0060) | 1 | Type of equipment that originally acquired the data used to create the images in this Series. | "RF" – Default<br>“XA” and “SC” Selectable in User Configuration. |
| Series Instance UID | (0020,000E) | 1 | Unique identifier of the Series. | According to Siemens Definition |
| Series Number | (0020,0011) | 2 | A number that identifies this Series. | counting value<br>(1 .. n) |
| Series Date | (0008,0021) | 3 | Date the Series started. | Date the Series was created on Imaging System |
| Series Time | (0008,0031) | 3 | Time the Series started. | Time the Series was created on Imaging System |
| Series Description | (0008,103E) | 3 | User provided description of the Series | None,<br>Native,<br>Sub,<br>Loop,<br>Selected |

### 9.1.1.4 General Equipment Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Manufacturer | (0008,0070) | 2 | Manufacturer of the equipment that produced the digital images. | “SIEMENS” |
| Institution Name | (0008,0080) | 3 | Institution where the equipment is located that produced the digital images. | Hospital name entered on MEMOSKOP |
| Device Serial Number | (0018,1000) | 3 | Manufacturer’s serial number of the equipment that produced the digital images. | serial number of X-Ray Unit |
| Software Versions | (0018,1020) | 3 | Manufacturer’s designation of software version of the equipment that produced the digital images. | Software version of MEMOSKOP |

### 9.1.1.5 X-Ray Acquisition Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| KVP | (0018,0060) | 3 | Peak Kilo voltage output of the X-Ray generator used. | "" |
| Exposure | (0018,1152) | 3 | The product of exposure time and X-Ray Tube Current expressed in mAs. | "" |
| Radiation Setting | (0018,1155 | 1 | Identify the general level of X-Ray dose exposure. Enumerated values are:<br>SC = low dose exposure generally corresponding to fluoroscopic settings (e.g. preparation for diagnostic quality image acquisition);<br>GR = high dose for diagnostic quality image acquisition (also called digital spot or cine); | "SC"<br>"GR" |

### 9.1.1.6 General Image Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Image Number | (0020,0013) | 2 | A number that identifies this image | counter-value<br>(0 .. n) |
| Patient Orientation | (0020,0020) | 2C | Patient direction of the rows and columns of the image.<br>Required if image does not require Image Orientation (0020,0037) and Image Position (0020,0032). See C.7.6.1.1.1 for further explanation. | Length zero |
| Image Date | (0008,0023) | 2C | The date the image pixel data creation started.<br>Required if image is part | The date the image pixel data creation started on Imaging System |

| | | | | |
|---|---|---|---|---|
| | | | of a series in which the images are temporally related. | |
| Image Time | (0008,0033) | 2C | The time the image pixel data creation started.<br>Required if image is part of a series in which the images are temporally related. | The time the image pixel data creation started on Imaging System |
| Image Type | (0008,0008) | 3 | Image identification characteristics. | ORIGINAL\PRIMARY (for native without aspect ratio correction)<br>DERIVED\PRIMARY (for subtracted without aspect ratio correction)<br>ORIGINAL\PRIMARY\ASPECTCORRECTED (for native with aspect ratio correction)<br>DERIVED\PRIMARY\ASPECTCORRECTED (for subtracted with aspect ratio correction) |
| Image Comments | (0020,4000) | 3 | User-defined comments about the image. | *) |
| Pixel Intensity Relationship | (0028,1040 | 1 | The relationship between the Pixel sample values and the X-Ray beam intensity.<br>Enumerated Values:<br>LIN = Linearly proportional to X-Ray beam intensity.<br>LOG = Logarithmically proportional to X-Ray beam intensity | “LIN” |

*) Image Comments (0020,4000) includes all overlay text strings and user-defined comments about the image as displayed at the Memoskop.
Backslashes "\" are used as delimiter between single strings.
Structure of Image Comments:
Program-name\Mode\Imagenumber\LUT\Scenename\Dose\Annotation_MaxRow\Annotation_MaxCol\Annotation_Line1.....Annotation_Line21

## 9.1.1.7 Overlay Plane Module Attributes

When "Overlay plane enable" is selected the Memoskop overlay and image comments are added as a graphic overlay within the Overlay Plane Module in order to have the same visual impression on a review station.
If "Image Size Reduction" is selected, "Overlay plane enable" won't available.

| Attribute Name | Tag | Type | Attribute Description | |
|---|---|---|---|---|
| Rows | (6000,0010) | 1 | Number of rows in Overlay. | 1024 |
| Columns | (6000,0011) | 1 | Number of columns in Overlay. | 1024 |
| Overlay Type | (6000,0040) | 1 | Indicates whether this overlay represents a region of interest or other graphics.<br>Enumerated Values:<br>G = Graphics<br>R = ROI. | G |
| Origin | (6000,0050) | 1 | Location of first overlay point with respect to pixels in the image, given as row and column. | 1,1 |
| Bits Allocated | (6000,0100) | 1 | Number of bits allocated in the overlay | 1 |
| Bit Position | (6000,0102) | 1 | Bit in which overlay is stored | 0 |
| Overlay Data | (6000,3000) | 1C | Overlay data shall be contained in this Attribute or imbedded with the image pixel data in Group 7FE0. | as displayed at Memoskop |

## 9.1.1.8 Image Pixel Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Samples per Pixel | (0028,0002) | 1 | Number of samples (planes) in this image. | 1 |
| Photometric Interpretation | (0028,0004) | 1 | Specifies the intended interpretation of the pixel data. See | MONOCHROME2 |
| Rows | (0028,0010) | 1 | Number of rows in the image. | 1024 |
| Columns | (0028,0011) | 1 | Number of columns in the image | 1024 |
| Bits Allocated | (0028,0100) | 1 | Number of bits allocated for each pixel sample. Each sample shall have the same number of bits allocated. See Part 5 of the DICOM Standard for further explanation. | 16 |

| | | | | |
|---|---|---|---|---|
| Bits Stored | (0028,0101) | 1 | Number of bits stored for each pixel sample. Each sample shall have the same number of bits stored. See Part 5 of the DICOM Standard for further explanation. | 12 |
| High Bit | (0028,0102) | 1 | Most significant bit for pixel sample data. Each sample shall have the same high bit. See Part 5 of the DICOM Standard for further explanation. | 11 |
| Pixel Representation | (0028,0103) | 1 | Data representation of the pixel samples. Each sample shall have the same pixel representation.<br>Enumerated Values:<br>0000H = unsigned integer.<br>0001H = 2's complement | 0000H (unsigned) |
| Pixel Data | (7FE0,0010) | 1 | A data stream of the pixel samples which comprise the Image. | raw image pixel data as they were stored on Imaging System |
| Pixel Aspect Ratio | (0028,0034) | 1C | Ratio of the real world spacing of the pixels in the image, specified by a numeric pair: row value (delimiter) column value.<br>Required if the aspect ratio is not 1\1 and the Image Plane Module is not applicable to this Image. | 1\1 if aspect ratio is corrected (default) |

### *When Image Size Reduction is selected following attributes will be used:*

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Samples per Pixel | (0028,0002) | 1 | Number of samples (planes) in this image. | 1 |
| Photometric Interpretation | (0028,0004) | 1 | Specifies the intended interpretation of the pixel data. See | MONOCHROME2 |
| Rows | (0028,0010) | 1 | Number of rows in the image. | 512 |
| Columns | (0028,0011) | 1 | Number of columns in the image | 512 |
| Bits Allocated | (0028,0100) | 1 | Number of bits allocated for each pixel sample. | 8 |
| Bits Stored | (0028,0101) | 1 | Number of bits stored for each pixel sample. | 8 |
| High Bit | (0028,0102) | 1 | Most significant bit for | 7 |

| | | | | |
|---|---|---|---|---|
| | | | pixel sample data. | |
| Pixel Representation | (0028,0103) | 1 | Data representation of the pixel samples. Each sample shall have the same pixel representation.<br>Enumerated Values:<br>0000H = unsigned integer.<br>0001H = 2's complement | 0000H (unsigned) |
| Pixel Data | (7FE0,0010) | 1 | A data stream of the pixel samples which comprise the Image. | raw image pixel data as they were stored on Imaging System |
| Pixel Aspect Ratio | (0028,0034) | 1C | Ratio of the real world spacing of the pixels in the image, specified by a numeric pair: row value (delimiter) column value.<br>Required if the aspect ratio is not 1\1 and the Image Plane Module is not applicable to this Image. | 1\1 if aspect ratio is corrected (default) |

### 9.1.1.9 Modality LUT Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Modality LUT Sequence | (0028,3000) | 3 | Defines a sequence of Modality LUTs. | add currently active MEMOSKOP-Display-LUT for single image storage; for storage of whole patient image-set use the linear Display-LUT |
| >LUT Descriptor | (0028,3002) | 1C | Specifies the format of the LUT Data in this SequenceRequired if the Modality LUT Sequence(0028,3000) is sent. | add currently active MEMOSKOP-Display-LUT for single image storage; for storage of whole patient image-set use the linear Display-LUT |
| >LUT Explanation | (0028,3003) | 3 | Free form text explanation of the meaning of the LUT. | add currently active MEMOSKOP-Display-LUT for single image storage; for storage of whole patient image-set use the linear Display-LUT |
| >Modality LUT Type | (0028,3004) | 1C | Specifies the output values of this Modality LUT. Required if the Modality LUT Sequence(0028,3000) is sent. | add currently active MEMOSKOP-Display-LUT for single image storage; for storage of whole patient image-set use the linear Display-LUT |
| >LUT Data | (0028,3006) | 1C | LUT Data in this Sequence. If padding is required to complete a full word, the padding value shall be 0. Required if the Modality LUT Sequence(0028,3000) is sent. | add currently active MEMOSKOP-Display-LUT for single image storage; for storage of whole patient image-set use the linear Display-LUT |

### 9.1.1.10 VOI LUT Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Window Center | (0028,1050) | 3 | Window Center for display. | 2048 |
| Window Width | (0028,1051) | 1C | Window Width for display. Required if Window Center (0028,1050) is sent. | 4095 |

***When Image Size Reduction is selected following attributes will be used*:**

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| Window Center | (0028,1050) | 3 | Window Center for display. | 128 |
| Window Width | (0028,1051) | 1C | Window Width for display. Required if Window Center (0028,1050) is sent. | 255 |

### 9.1.1.11 SOP Common Module Attributes

| Attribute Name | Tag | Type | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|---|
| SOP Class UID | (0008,0016) | | Uniquely identifies the SOP Class | Depending on selected Modality in User Setup |
| SOP Instance UID | (0008,0018) | | Uniquely identifies the SOP Instance. | "1.3.12.2.1107.5.12.1. serial_number. YYYYMMDD hhmmssnnnnnn.NN" |
| Specific Character Set | (0008,0005) | 1C | Character Set that expands or replaces the Basic Graphic Set. Required if an expanded or replacement character set is used. | ISO_IR 100 |
| Instance Creation Date | (0008,0012) | 3 | Date the SOP Instance was created. | Send date |
| Instance Creation Time | (0008,0013) | 3 | Time the SOP Instance was created. | Send time |
| Instance Creator UID | (0008,0014) | 3 | Uniquely identifies device which created the SOP Instance. | "1.3.12.2.1107.5.12.1" |

## *9.2 Basic Film Session Presentation Module*

| Attribute name | Tag | Description | MEMOSKOP-Setting |
|---|---|---|---|
| Number of Copies | (2000,0010) | Number of copies to be printed for each film of the film session. | as selected by the user;<br>max. value set in Configuration Menu |
| Print Priority | (2000,0020) | Specifies the priority of the print job;<br>Enumerated Values:<br>HIGH<br>MED<br>LOW | as setup in Configuration Menu |
| Medium Type | (2000,0030) | Type of medium on which the print job will be printed; Defined Terms:<br>PAPER<br>CLEAR FILM<br>BLUE FILM | as setup in Configuration Menu |
| Film Destination | (2000,0040) | Film destination; Enumerated Values:<br>MAGAZINE = the exposed film is stored in film magazine<br>PROCESSOR = the exposed film is developed in<br>film processor | as setup in Configuration Menu |
| Film Session Label | (2000,0050) | Human readable label that identifies the film session | as setup in Configuration Menu |

### 9.2.1.1 Basic Film Box Presentation Module

| Attribute Name | Tag | Description | MEMOSKOP-Setting |
|---|---|---|---|
| Image Display Format | (2010,0010) | Type of image display format; Enumerated Values:<br><br>STANDARD\C,R : film contains equal size rectangular image boxes with R rows of image boxes and C columns of image boxes; C and R are integers | STANDARD\1,1<br>STANDARD\2,2<br>STANDARD\4,4<br><br>Also can be configured by setting the "*Film Formats"* entry in the system configuration with software version 2.0.57 or later. |
| Film Orientation | (2010,0040) | Film orientation; Enumerated Values:<br>PORTRAIT = vertical film position<br>LANDSCAPE = horizontal film position | as setup in Configuration Menu |

| | | | |
|---|---|---|---|
| Film Size ID | (2010,0050) | Film size identification; Defined Terms:<br>8INX10IN<br>10INX12IN<br>10INX14IN<br>11INX14IN<br>14INX14IN<br>14INX17IN<br>24CMX24CM<br>24CMX30CM<br><br>NOTE: 10INX14IN corresponds with 25.7CMX36.4 CM | 8INX10IN<br>11INX14IN<br>14INX17IN<br><br>Also can be configured by setting the "*Film Sizes"* entry in the system configuration with software version 2.0.57 or later. |
| Magnification Type | (2010,0060) | Interpolation type by which the printer magnifies the image in order to fit the image in the image box on film; Defined Terms:<br>REPLICATE<br>BILINEAR<br>CUBIC<br>NONE | BILINEAR |
| Smoothing Type | (2010,0080) | Further specifies the type of the interpolation function;<br>values are defined in Conformance Statement; only valid for Magnification Type (2010,0060) = CUBIC | Not used |
| Border Density | (2010,0100) | Density of the film areas surrounding and between images on the film; Defined Terms:<br>BLACK<br>WHITE<br>i<br>where i represents the desired density in hundreds of OD (e.g. 150 corresponds with 1.5 OD) | as setup in Configuration Menu |
| Empty Image Density | (2010,0110) | Density of the image box area on the film that contains no image; Defined Terms:<br>BLACK<br>WHITE<br>i<br>where i represents the desired density in hundreds of OD (e.g. 150 corresponds with 1.5 OD) | as setup in Configuration Menu |
| Min Density | (2010,0120) | Minimum density of the images on the film, expressed in hundreds of OD; if Min Density is lower than minimum printer density than Min Density is set to | 0<br><br>Also can be configured by setting the "*Min Density"* entry in the system configuration with |

| | | | |
|---|---|---|---|
| | | minimum printer density. See also note | software version 2.0.58 or later. |
| Max Density | (2010,0130) | Maximum density of the images on the film, expressed in hundreds of OD; if Max Density is higher than maximum printer density than Max Density is set to maximum printer density. See also note | 100<br><br>Also can be configured by setting the "*Max Density"* entry in the system configuration with software version 2.0.58 or later. |
| Trim | (2010,0140) | Specifies whether a trim box shall be printed surrounding each image on the film;<br>Enumerated Values:<br>YES<br>NO | as setup in Configuration Menu |
| Configuration Information | (2010,0150) | Character string that contains either the ID of the printer configuration table that contains a set of values for implementation specific print parameters (e.g. perception LUT related parameters) or one or more configuration data values, encoded as characters. If there are multiple configuration data values encoded in the string, they shall be separated by backslashes. The definition of values shall be contained in the SCP's Conformance Statement. | not used |
| Referenced Film Session Sequence | (2010,0500) | A sequence which provides references to a Film Session SOP Class/Instance pairs. Encoded as a sequence of items : (0008,1150) and (0008,1155) | reference to created film session |
| >Referenced SOP Class UID | (0008,1150) | Uniquely identifies the referenced SOP Class. | reference to created film session |
| >Referenced SOP Instance UID | (0008,1155) | Uniquely identifies the referenced SOP Instance. | reference to created film session |
| Referenced Image Box Sequence | (2010,0510) | A sequence which provides references to a set of Image Box SOP Class/Instance pairs. Encoded as a sequence of items : (0008,1150) and (0008,1155) | reference to created Image Box Sequence |
| >Referenced SOP Class UID | (0008,1150) | Uniquely identifies the referenced SOP Class. | reference to created Image Box Sequence |
| >Referenced SOP Instance UID | (0008,1155) | Uniquely identifies the referenced SOP Instance. | reference to created Image Box Sequence |

### 9.2.1.2 Image Box Pixel Presentation Module

| Attribute Name | Tag | Description | MEMOSKOP-Setting |
|---|---|---|---|
| Image Position | (2020,0010) | The position of the image on the film, based on Image Display Format (2010,0010). | counted by MEMOSKOP sw |
| Polarity | (2020,0020) | Specifies whether minimum pixel values (after VOI LUT transformation) are to printed black or white; Enumerated Values:<br>NORMAL = pixels shall be printed as specified by the Photometric Interpretation (0028,0004)<br>REVERSE = pixels shall be printed with the opposite polarity as specified by the Photometric Interpretation (0028,0004)<br><br>If Polarity (2020,0020) is not specified by the SCU, the SCP shall print with NORMAL polarity. | as setup in Configuration Menu |
| Preformatted Grayscale Image Sequence | (2020,0110) | A sequence which provides the content of the Preformatted Grayscale Image Pixel Attributes. It is encoded as a sequence of Attributes of the Image Pixel Module. | image data |
| >Samples Per Pixel | (0028,0002) | Enumerated Value: 1 | same as for SC Image Pixel Module |
| >Photometric Interpretation | (0028,0004) | Enumerated Values:<br>MONOCHROME1<br>MONOCHROME2 | same as for SC Image Pixel Module |
| >Rows | (0028,0010) | N/A | same as for SC Image Pixel Module |
| >Columns | (0028,0011) | N/A | same as for SC Image Pixel Module |
| >Pixel Aspect Ratio | (0028,0034) | N/A | same as for SC Image Pixel Module |
| >Bits Allocated | (0028,0100) | Enumerated Values:<br>16 (if Bits Stored = 12) | same as for SC Image Pixel Module |
| >Bits Stored | (0028,0101) | Enumerated Values: 12 | same as for SC Image Pixel Module |
| >High Bit | (0028,0102) | Enumerated Values:<br>11 (if BITS STORED = 12) | same as for SC Image Pixel Module |
| >Pixel Representation | (0028,0103) | Enumerated Value: 0000 (unsigned integer) | same as for SC Image Pixel Module |

| | | | |
|---|---|---|---|
| >Pixel Data | (7FE0,0010) | N/A | same as for SC Image Pixel Module |

### 9.2.1.3 Printer Module

| Attribute Name | Tag | Description | MEMOSKOP-Setting |
|---|---|---|---|
| Printer Status | (2110,0010) | Printer device status; Enumerated Values:<br>NORMAL<br>WARNING<br>FAILURE | evaluated by MEMOSKOP |
| Printer Status Info | (2110,0020) | Additional information when Printer Status (2110,0010) is WARNING or FAILURE.<br>Defined Terms when the Printer Status is equal to WARNING:<br>SUPPLY EMPTY = Printer is out of film<br>SUPPLY LOW = Film supply low<br>RECEIVER FULL = Film receiver magazine full<br>FILM JAM = Film Jam<br><br>No Defined Terms are currently specified for when the Execution Status is equal to FAILURE. | evaluated by MEMOSKOP |
| Printer Name | (2110,0030) | User defined name identifying the printer | not evaluated by MEMOSKOP |
| Manufacturer | (0008,0070) | Manufacturer of the printer | not evaluated by MEMOSKOP |
| Manufacturer Model Name | (0008,1090) | Manufacturer's model number of the printer | not evaluated by MEMOSKOP |
| Device Serial Number | (0018,1000) | Manufacturer's serial number of the printer | not evaluated by MEMOSKOP |
| Software Versions | (0018,1020) | Manufacturer's designation of software version of the printer | not evaluated by MEMOSKOP |
| Date Of Last Calibration | (0018,1200) | Date when the printer was last calibrated | not evaluated by MEMOSKOP |
| Time Of Last Calibration | (0018,1201) | Time when the printer was last calibrated | not evaluated by MEMOSKOP |

## *9.3 Basic Worklist Mgt IOD´s*

### 9.3.1 Search Keys Attributes of Worklist C-FIND

#### 9.3.1.1 SOP Common Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Specific Character Set | (0008,0005) | Character Set that expands or replaces the Basic Graphic Set. | “ISO_IR 100“ |

#### 9.3.1.2 Scheduled Procedure Step Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Scheduled Procedure Step Sequence | (0040,0100) | One or more Scheduled Procedure Steps for one Requested Procedure. | |
| >Scheduled Station AE Title | (0040,0001) | The AE title of the modality on which the Scheduled Procedure Step is scheduled to be performed. | as selected by the user in the User Setup Menu |
| >Scheduled Station Name | (0040,0010) | An institution defined name for the modality on which the Scheduled Procedure Step is scheduled to be performed. | as selected by the user in the User Setup Menu |
| >Scheduled Procedure Step Start Date | (0040,0002) | Date on which the Scheduled Procedure Step is scheduled to start. | As entered on new patient data mask |
| >Scheduled Procedure Step Start Time | (0040,0003) | Time at which the Scheduled Procedure Step is scheduled to start. | As entered on new patient data mask |
| >Scheduled Performing Physician's Name | (0040,0006) | Name of the physician scheduled to administer the Scheduled Procedure Step. | As entered on new patient data mask |
| >Scheduled Procedure Step Description | (0040,0007) | Institution-generated description or classification of the Scheduled Procedure Step to be performed.<br>Note: The purpose of this attribute is to store a description or classification that is used at a local level (e.g., a hospital or a managed care network), and this description need not comply to an accepted standard. | As entered on new patient data mask |
| >Scheduled Action Item Code Sequence | (0040,0008) | Sequence describing the Scheduled Action Item(s) following a specified coding scheme. This sequence contains one or more Action Items. | NULL |
| >Scheduled Procedure Step ID | (0040,0009) | Identifier which identifies the Scheduled Procedure Step. | NULL |
| >Modality | (0008,0060) | Source equipment for the image. See PS 3.3 for | ‘RF‘ – Default<br>„XA“ and „SC“ Selectable in |

| | | | |
|---|---|---|---|
| | | Enumerated Values | User Configuration |

### 9.3.1.3 Procedure Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Requested Procedure ID | (0040,1001) | Identifier which identifies the Requested Procedure in the Imaging Service Request | NULL |
| Requested Procedure Description | (0032,1060) | Institution-generated administrative description or classification of Requested Procedure | NULL |
| Requested Procedure Code Sequence | (0032,1064) | Institution-generated administrative description or classification of Requested Procedure | NULL |
| Study Instance UID | (0020,000D) | Unique identifier to be used to identify the Study | NULL |
| Referenced Study Sequence | (0008,1110) | Uniquely identifies the Study SOP Instances associaated with this SOP Instance | NULL |

### 9.3.1.4 Imaging Service Request Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Accession Number | (0008,0050) | A departmental IS generated number which identifies the order for the Imaging Service Request | As entered on new patient data mask |
| Referring Physician's Name | (0008,0090) | Patient's primary physician for this Imaging Service Request | NULL |

### 9.3.1.5 Patient Identification Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Patient's Name | (0010,0010) | Patient's full legal name | as entered on patient data mask<br><br>Includes Lastname, Firstname, Middlename, Prefix and Suffix separated by ^ (Caret) according to PN-definition in [1]<br><br>A Wildcard '*' is set always at the end of patient name<br><br>Includes '*' and '?' wildcards |
| Patient ID | (0010,0020) | Primary hospital identification number or code for the patient | As entered on patient data mask |

### 9.3.1.6 Patient Demographic Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Patient's Birth Date | (0010,0030) | Date of birth of the named patient | As entered on new patient data mask |
| Patient's Sex | (0010,0040) | Sex of the named patient.<br>Enumerated Values:<br>M=male<br>F=female<br>O=other | As entered on new patient data mask<br>In case O=other is selected then a NULL request is sent to the SCP on worklist request. |

## *9.4 Query/Retrieve Mgt IOD´s*

### 9.4.1 Search Key Attributes of Query/Retrieve C-FIND

#### 9.4.1.1 SOP Common Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Specific Character Set | (0008,0005) | Character Set that expands or replaces the Basic Graphic Set. | "ISO_IR 100" |

#### 9.4.1.2 Study Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Study Date | (0008,0020) | Date on which the Study was created.. | As entered on patient query data mask |
| Study Time | (0008,0030) | Time at which the Study was created. | As entered on patient query data mask |
| Accession Number | (0008,0050) | A departmental IS generated number<br>which identifies the order for the Imaging Service Request | As entered on patient query data mask |

#### 9.4.1.3 Series Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Series Description | (0000,103E) | Description of the series module. | As entered on patient query data mask |
| Body Part Examined | (0018,0015) | Decsription of body part examined. | As entered on patient query data mask |

#### 9.4.1.4 Patient Identification Module

| Attribute Name | Tag | Attribute Description | MEMOSKOP-Setting |
|---|---|---|---|
| Patient's Name | (0010,0010) | Patient's full legal name | as entered on patient query mask |

| | | | |
|---|---|---|---|
| | | | Includes Lastname, Firstname, Middlename, Prefix and Suffix separated by ^ (Caret) according to PN-definition in [1]<br><br>A Wildcard '*' is set always at the end of patient name<br><br>Includes '*' and '?' wildcards |
| Patient ID | (0010,0020) | Primary hospital identification number or code for the patient | As entered on patient query mask |

## 9.4.1.5 Patient Demographic Module

| **Attribute Name** | **Tag** | **Attribute Description** | **MEMOSKOP-Setting** |
|---|---|---|---|
| Patient's Birth Date | (0010,0030) | Date of birth of the named patient | As entered on new patient query mask |
| Patient's Sex | (0010,0040) | Sex of the named patient.<br>Enumerated Values:<br>M=male<br>F=female<br>O=other | As entered on new patient query mask |